

Physics
Refraction Worksheet

$$n = \frac{c}{v}$$

$$\theta_c = \sin^{-1}\left(\frac{n_2}{n_1}\right)$$

$$c = 3 \times 10^8 \text{ m/s}$$

1. Water has an index of refraction of 1.33. Determine the speed that light travels in water.
2. Diamond has a index of refraction of 2.42. Determine the speed that light travels in diamond
3. It is determined that light travels at a speed of 1.87×10^8 m/s in a substance. Determine the index of refraction of the substance.
4. An unknown substance has light travel through it at 2.23×10^8 m/s. Determine the index of refraction of the substance. (round to two decimal places)
5. A ray of light travels from a glass into a vacuum. If the index of refraction for glass is 1.5, determine the critical angle.

6. Light travels from diamond into water. What is the critical angle for this situation?

7. If a substance has a higher index of refraction, does that mean it light travels faster or slower in that medium?

8. If a light ray passes from a substance with low index of refraction to another substance with high index of refraction, will the ray bend away from or closer to the normal?

9. If a light ray passes from a substance with high index of refraction to a different substance with low index of refraction, will the ray bend away from or closer to the normal?